

Code 540

**GSFC Pressure Vessel/Systems Program
High Pressure Operator License Procedure**

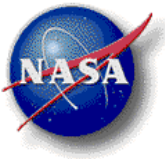
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**National Aeronautics and
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**Goddard Space Flight Center
Greenbelt, Maryland**



Signature Page

Prepared by:

Ronak Patel
SGT Inc.
PVS Engineer/Code 540

Date

Approved by:

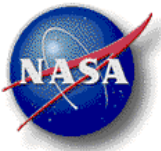
Brian Montgomery
GSFC PSM
NASA/GSFC, Code 540

Date

Approved by:

A.V. Hanagud
WFF PSM
NASA/WFF, Code 500

Date



DOCUMENT CHANGE RECORD

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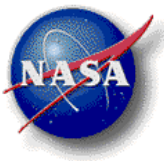
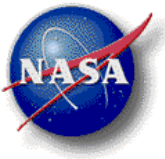


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1. PURPOSE

The purpose of this document is to provide requirements to ensure that:

- GSFC personnel, civil servants and contractors, who perform or control hazardous ground based pressure vessels and pressurized systems (PVS) operations, perform the job in accordance with this document and NASA Policy Directive (NPD) 8710.5, NASA Safety Policy for Pressure Vessels and Pressurized Systems, NASA Procedural Requirements (NPR) 8715.3, NASA General Safety Program Requirements, applicable Federal Regulations, and national consensus codes and standards (NCS)
- Such personnel obtain hazardous operation safety certification for their assigned tasks that have an immediate danger to the individual (death/injury) if not performed correctly, or could create a danger to other individuals in the immediate area, or are a danger to the environment, and/or NASA facilities or equipment.

2. SCOPE

These requirements apply to the operation of high pressure (>150 psig) GSFC owned/operated, temporary/permanent, ground based PVS and non-GSFC owned (contractor/tenant) ground based PVS operated on GSFC property, if that PVS is determined by the GSFC Pressure Systems Manager (PSM) to pose a risk to GSFC personnel, facilities, or equipment.

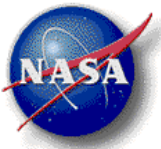
Systems that by design or overpressure protection (i.e. use of relief valves and/or rupture disks) cannot be operated above 150 psig will not require the operator to be certified to this program.

3. PERSONNEL CERTIFICATION REQUIREMENTS

3.1 PROGRAM

Only certified high pressure PVS operators shall be authorized by the GSFC PSM to operate or to oversee operation of high pressure PVS. This operator certification program will be reviewed by the GSFC PSM at least annually to assure that the contents, training material, testing, and examination elements are up-to-date with current methods and techniques; and that any "lessons learned" are adequately communicated and addressed.

All required documentation shall be retained per the applicable NRRS schedule. Training shall be provided to operators and owners of high pressure systems. All participants in the high pressure PVS operation shall have clearly defined roles and responsibilities.



3.2 TRAINING

3.2.1 Classroom

Training in Pressure Systems Safety Awareness, SATERN Courses SMA-SAFE-NSTC-0320 *Pressure Vessel/Systems Certification and Inspection* (Greenbelt Facility Only), SAFE-NSTC-0319 *Compressed Gas Cylinder Safety*, SMA-SAFE-NSTC-0056 *Flexible Hose Safety*, and SMA-SAFE-NSTC-0317 *Safety in High Pressure Operations* are prerequisites to high pressure PVS operator certification.

Alternative training may be submitted for review to the GSFC PSM on a case-by-case situation for approval. If an operator has been previously trained by sources outside of NASA, they may submit proof of such training to the GSFC PSM for approval as being equivalent to the above classroom training (proof of training must include course syllabus and proof of successful completion, with instructor(s) signature).

3.2.2 On the Job (OJT)

Classroom and hands on training administered by a qualified and licensed high pressure systems operator for the applicable system(s) or a person who has received permission from the GSFC PSM to conduct such training and examinations.

3.2.3 Additional

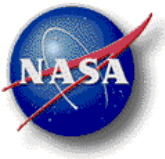
Safety training, such as hearing conservation, personal protective equipment, lock-out tag-out, and so forth, shall be considered by the operator's supervisor prior to the licensed operator utilizing high pressure PVS, however, this training is outside of the scope of this program.

Certification as a high pressure operator does not satisfy all the requirements of NPR 8715.3 associated with operating and/or maintaining hazardous systems such as cryogenic systems, high temperature systems, and systems with flammable fluids or oxidizers. Additional training and certification beyond the scope of this Program may be required for these systems.

3.3 EXAMINATIONS

3.3.1 Medical

Medical examinations shall be in accordance with NASA NPR 1800.1C. At a minimum the medical examination shall be conducted every two (2) years. The minimum laboratory requirements of the medical examination shall be an Audiogram and Visual Acuity, Dipstick (Urine), Depth Perception, and Color Vision (or demonstration of employee's ability to see and hear warnings, such as flashing lights, buzzers, and sirens). The minimum medical examination will be a Medical and Occupational History and a Physical Examination with focus on employee's ability to carry out assigned duties and detection of any abnormality that would make it difficult to operate a high pressure system. Failure to successfully pass a medical examination will immediately void the high pressure



operator license and the operator will have to forfeit their certification to the GSFC PSM.

The licensee should consult the appropriate medical center for scheduling this examination; whether it is the Greenbelt Facility/Wallops Facility on-site medical center for civil servants or a remote facility for contractors.

3.3.2 Written

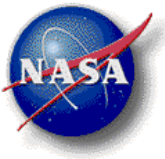
Written examinations shall be prepared such that the operator demonstrates cognizance of the specific high pressure PVS system(s), NASA Standard 8719.17, and GPR 8710.3. The examination shall be provided by the owner of the PVS. The PSM can help the owner by supplying sample questions and a guide as to what is expected to be included in a written examination. If the owner is the operator of the system, the supervisor, laboratory manager, or division chief shall provide such examination.

3.3.3 Operational

An operational examination for initial certification and after significant system modifications or procedural changes shall be conducted to demonstrate appropriate hands on capability of the specific high pressure PVS system(s). This examination shall be conducted by a qualified and licensed high pressure systems operator for the applicable system(s) or a person who has received permission from the GSFC PSM to conduct such training and examinations.

3.4 CERTIFICATION

1. Upon receipt of required documentation, outlined in section 4, the GSFC PSM shall issue a high pressure PVS operator license. The operator shall carry this license while operating the associated high pressure PVS system(s) or have it readily available for review by the GSFC PSM or Safety.
 - a. The GSFC PSM may revoke licenses for negligence, violations of safety requirements, or failure to meet medical standards, at the discretion of the GSFC PSM, Lab Manager or individual's supervisor.
 - b. The license shall indicate the specific PVS the licensee is qualified to operate. Alternately, the GSFC PSM may designate a class or location for systems covered by the license.
2. Licenses will expire after two (2) years. License renewal shall require approval of supervision that operator proficiency is adequate and current and shall include the examinations required in section 3.3.
3. Contractors who have their own high pressure certification program may submit such program to the GSFC PSM for approval. If approved, the contractor shall utilize their program in lieu of the GSFC high pressure system certification program to train, certify and license their high pressure PVS operators. In this case, the GSFC PSM will notify all affected parties that the contractor is utilizing their own certification program and will be issuing their own licenses. Validation of the contractors' approved program is required annually and the contractor must meet with and submit their certification program to the GSFC PSM. Due to non compliance with NASA/GSFC requirements or the contractors own program



requirements; the GSFC PSM may revoke the contractor's high pressure certification program at any time.

3.5 REVOCATION

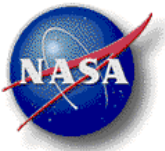
The PSM may revoke high pressure operator licenses for any of the following reasons:

1. Recommendations by an appointed panel of inquiry or Mishap Investigation Board.
2. Violations of, or noncompliance with, any of the safety requirements in the documented procedures.
3. Failure of supervisor providing documentation on reviewing of training outlined in section 4.
4. Failure to meet requirements of medical examination records.

Revoked operator licenses must be returned to the PSM within three (3) business days, and may be reinstated upon satisfactory completion of applicable refresher training or other remedial actions deemed appropriate by the PSM. Licenses may be extended up to but not exceeding 30 days to allow for project demands and class scheduling flexibility. To be eligible for a license extension the operator must request the extension prior to the expiration date of the license and have a current medical examination. Extensions will not be granted if the license or the medical examination has expired.

4. REQUIRED DOCUMENTATION SUBMITTAL FOR OBTAINING LICENSES

1. Notification from the medical examiner noting pass/fail of medical examination, including recertification. Do not send any personal identifiable information (PII).
2. Successful completion of SATERN courses is documented in the SATERN system. Copies of SATERN certificates should be submitted to the GSFC PSM.
3. Alternative training documentation per section 3.2.
4. OJT administrator qualifications or approval request for the GSFC PSM.
5. Proof of OJT including training, written examinations, and operational examinations. This shall include a letter from the OJT administrator stating that the candidate is fully qualified and proficient in the operation of the respective high-pressure PVS system(s). Successful completion of written examinations must be submitted to the GSFC PSM.
6. Contractor high pressure PVS certification program documentation for contractors requesting their own certification program.
7. High Pressure Operators or supervisors are to confirm completion of medical examination every two years by notifying the GSFC PSM of passing the examination. Failure to notify PSM of passing medical examination will require Operator to forfeit certification to GSFC PSM. Certification will be returned upon passing medical examination.
8. All relevant documentation shall be retained on the applicable NRRS schedule.



4.1 ADDITIONAL REQUIREMENTS FOR WALLOPS FLIGHT FACILITY

High Pressure Systems Operator License Request Form must be submitted to the GSFC PSM prior to issuing a license.

The high pressure system operator's license will list specific systems the operator is authorized to operate and will indicate the proficiency level of the operator as follows:

1. Level 1 is for inexperienced "trainees" requiring direct supervision of a Level 2 or Level 3 operator. General High Pressure System Training as detailed above is a prerequisite to being issued a Level 1 operator's license. A Level 1 license is required prior to receiving hands on OJT to ensure that the trainee is aware of the general hazards and safety precautions associated with high pressure system operations. Since a Level 1 license is not system specific, a Level 1 trainee can pursue hands on OJT for any system authorized by the operator's organization.
2. Level 2 is for "Experienced and Trained" operators, meeting all Level 1 requirements, who can operate a system independently without supervision and are capable of performing troubleshooting with the supervision of or approval by a Level 3 operator of the same system. Level 2 operators can train Level 1 and Level 2 operators when delegated by a Level 3 operator of the same system.
3. Level 3 is for "Highly Experienced and Trained" operators, meeting all Level 2 requirements, who can operate and troubleshoot a system independently without supervision and who can train Level 1 and Level 2 operators of the same system. Level 3 operators can delegate the training of Level 1 and Level 2 operators to Level 2 operators of the same system that have the required skill set and knowledge to perform such training. Level 3 operators must concur on level promotions for operators of the systems they oversee. If a Level 3 operator is not available for concurrence, then another qualified operator may sign with the approval of the Pressure System Manager.